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Subject: Safety and Mission Assurance (SMA) Audits, Reviews, and Assessments

Responsible Office: Office of Safety and Mission Assurance

| [TOC](#) | [Preface](#) | [Chapter1](#) | [Chapter2](#) | [Chapter3](#) | [AppendixA](#) | [AppendixB](#)
| [AppendixC](#) | [ALL](#) |

Chapter 2. SMA Audits and Assessments

2.1 Overview

2.1.1 In addition to the main objective stated in 1.2.1, SMA audits and assessments are conducted to achieve the following other objectives:

- a. Verify that applicable Federal, State, and local safety and health statutes and regulations and NASA SMA requirements are appropriately documented and flowed down.
- b. Verify that documented processes achieve the intent of the NASA SMA requirements.
- c. Provide NASA Center, program, or project management with an independent, objective, and constructive evaluation of the compliance of the institution, facilities, operations, programs, or projects with the applicable requirements.
- d. Identify areas for continual improvement of the implementation of NASA SMA requirements.

2.1.2 The objectives stated in 2.1.1 are accomplished by the following activities, which include but are not limited to:

- a. Reviewing the NASA Center, program, or project organizations' SMA requirements and documented procedures to ensure that applicable Federal, State, and local safety and health statutes and regulations and NASA SMA requirements are appropriately flowed down and implemented.

- b. Reviewing documentation and records of completed work and training.
- c. Assessing the capability of the NASA Center, program, or project organization to implement the applicable Federal, State, and local safety and health statutes and regulations and NASA SMA requirements.
- d. Interviewing NASA Center, program, or project organizations' personnel.
- e. Observing the NASA Center, program, or project organizations' procedures, processes, and practices.
- f. Verifying the effective implementation of corrective actions, including those related to previous audit findings.
- g. Collecting and examining objective evidence that demonstrates compliance with the NASA SMA requirements (see definition in Appendix A).

2.1.3 SMA audit and assessment processes coordinate with and leverage audits, reviews, and assessments conducted by the Center, program, project, other NASA or governmental organizations, or certified nongovernmental organizations to facilitate verification of compliance with SMA requirements.

2.2 Roles and Responsibilities

2.2.1 The NASA Associate Administrator and Associate Administrator for the Mission Support Directorate shall ensure that NASA Centers have adequate resources to perform regularly scheduled internal SMA audits and assessments and support SMA audits and assessments (Requirement).

2.2.2 Mission Directorate Associate Administrators shall ensure that programs and projects have adequate resources to perform regularly scheduled internal SMA audits, reviews, and assessments and support SMA audits and assessments (Requirement).

2.2.3 The Chief, Safety and Mission Assurance shall:

- a. Implement the SMA audit and assessment process in accordance with NPD 1210.2 and with the support of the NASA Safety Center (NSC) (Requirement).
- b. Select the SMA audit and assessment requirement set that will be the scope of the SMA audit and assessment with inputs from the Office of Safety and Mission Assurance (OSMA) staff and the NASA Center, program, or project (Requirement).
- c. Request that the NASA Center, program, or project identify an audit and assessment point of contact to facilitate assistance from the NASA Center, program, or project during the SMA audit and assessment (Requirement).
- d. Provide an announcement letter to the NASA Center, program, or project identifying the intent to audit or assess the organization and providing a schedule of activities related to the SMA audit and assessment (Requirement).
- e. Verify implementation of effective corrective actions for all SMA audit noncompliance and track corrective actions to closure (Requirement).
- f. Provide SMA audit and assessment results to affected/applicable NASA Headquarters and NASA Center Organizations (Requirement).

2.2.4 The NSC Director shall: a Manage SMA audits and assessments on behalf of the Agency's Chief, Safety and Mission Assurance (Requirement).

b. Ensure the development of an annual SMA integrated audit and assessment schedule (Requirement).

c. Ensure that the current SMA integrated audit and assessment schedule is accessible to NASA Centers, programs, and projects (Requirement).

d. Provide an announcement letter to the NASA Center or program SMA Director or project SMA manager identifying the SMA audit and assessment team and their related qualifications (Requirement).

e. Assign an SMA audit and assessment team lead to plan, execute, and close each SMA audit and assessment in accordance with NPD 1210.2, Chapter 5 (Requirement).

f. Ensure the development and execution of each SMA audit and assessment plan including the following:

(1) Coordination with the NASA Center, program, or project organization to be audited to identify the scope of the SMA audit and assessment, resources required to support audit and assessment, and the agreed to start and finish dates (Requirement).

(2) Recruitment of subject matter experts to comprise the SMA audit and assessment team that is independent of the organization being audited (Requirement).

Note: Subject matter experts are recruited from NASA Headquarters and NASA Center organizations with SMA policy/procedures responsibilities or expertise and may also include other Government agency experts.

(3) Development of SMA audit and assessment guides that address the SMA audit and assessment scope and reflect the SMA audit and assessment team's preparation (Requirement).

g. Prior to conducting the SMA audit and assessment, ensure that each SMA audit and assessment team member is trained, through auditor refresher training, and prepared to conduct the SMA audit and assessment (Requirement).

h. Provide the SMA audit and assessment report and corrective action plan (CAP) template information to the appropriate Center Director, Center SMA Director, Program Manager, NASA Headquarters Mission Directorate Associate Administrator, and affected institutional organizations and OSMA personnel with responsibilities for the areas reviewed (Requirement).

i. Ensure that SMA audit and assessment documents, including a listing of best practices identified during audits and assessments, are archived in a manner that is retrievable by designated NASA personnel at each NASA Center, program, and project (Requirement).

j. During the audit, ensure that each noncompliance is traceable to a clearly identified requirement and that each auditor documents the objective evidence of the NASA Center's noncompliance with the requirements appropriate to the audit objective(s) (Requirement).

k. Ensure that CAPs provided by the NASA Centers receive technical comments focused on reducing the probability of recurrence of the finding.

2.2.5 Center Directors shall:

- a. Conduct NASA Center SMA self-assessments and provide results to the NSC (Requirement).
- b. Incorporate SMA audit and assessment activities into the Center's plans (Requirement).
- c. Support the audit or assessment plan by providing the logistic and resource support required for successful execution of and response to the SMA audit and assessment (e.g. planning and schedule coordination, and workspace and information technology support) (Requirement).
- d. Identify and provide NASA Center subject matter experts to the SMA audit and assessment team, as requested, during the SMA audit and assessment activities (Requirement).
- e. Identify and provide NASA Center subject matter experts to be SMA audit and assessment team members for SMA audits and assessments of other NASA Centers, programs, and projects.
- f. Identify a SMA audit and assessment point of contact for the NASA Center to facilitate assistance during the SMA audit and assessment (Requirement).

2.2.6 Center SMA Directors shall:

- a. Support and participate in the SMA audit and assessment process activities related to his/her respective organization (Requirement).
- b. Incorporate internal Center SMA audit and assessment activities into Center SMA plans (Requirement).
- c. Provide to the SMA audit and assessment team lead all necessary review materials including, but not limited to, Center documents; organizational charts; contracts; results of other relevant audits, reviews, or assessments that may have previously verified compliance with requirements; and Center internal SMA audits and assessments to facilitate the planning and execution of the SMA audit and assessment (Requirement).
- d. Provide a CAP addressing resolution of all Center SMA audit noncompliances to the NSC (Requirement).
- e. Provide annual status of the CAP to the NSC until all Center SMA audit noncompliances have been closed (Requirement).

2.2.7 Program/project managers shall:

- a. Incorporate SMA audit and assessment activities into program/project SMA plans (Requirement).
- b. Conduct internal SMA self audits and assessments and make the results available to the NSC (Requirement).
- c. Support the SMA audit and assessment plan by providing the program/project logistic and resource support required for successful execution of and response to the SMA audit and assessment (e.g. planning and schedule coordination and workspace and information technology support) (Requirement).

- d. Identify a SMA audit and assessment point of contact for the program/project to facilitate assistance during the SMA audit and assessment (Requirement).
- e. Provide to the SMA audit and assessment team all necessary review materials including, but not limited to, program/project documents; organizational charts; contracts; results of other relevant audits, reviews, or assessments that may have previously verified compliance with SMA requirements; and program/project internal SMA audits and assessments to facilitate the planning and execution of the SMA audit and assessment (Requirement).
- f. Ensure that contracts provide for contractor support of SMA audit and assessment activities.

Note: Contractors who are responsible for implementing SMA requirements will need to provide relevant information and be available to discuss the requirements and implementation during SMA audits and assessments.

- g. Provide a CAP, through the Center SMA Director, addressing resolution of all project/program SMA audit noncompliances to the NSC (Requirement).
- h. Provide CAP status to the NSC annually until all program/project noncompliances have been closed (Requirement).

2.2.8 Other independent assessment organizations (e.g., NASA Engineering and Safety Center (NESC), NASA Independent Verification and Validation (IV&V) Program, and Center-based independent assessment organizations) will identify and provide subject matter experts to the OSMA, as requested, to participate as SMA audit and assessment team members.

2.3 IFO Safety Audits

2.3.1 The NSC shall conduct IFO Safety Audits to verify the implementation of applicable Federal, State, and local safety and health statutes and regulations and NASA SMA requirements contained in, but not limited to, the SMA requirements documents (NPDs, NPRs, and NASA standards) posted on the Safety and Mission Assurance Requirements Tree: <http://www.hq.nasa.gov/office/codeq/doctree/doctree.htm> (Requirement). See Appendix C for a list of documents that are included in IFO Safety Audits.

2.3.2 The NSC shall conduct IFO Safety Audits on a three-year basis at NASA Centers, Component Facilities, and the Institutional part of JPL (Requirement).

2.4 QAAR

2.4.1 The NSC shall conduct QAARs to verify compliance with NASA SMA quality assurance requirements contained in, but not limited to, the SMA requirements documents (NPDs, NPRs, and NASA standards) posted on the Safety and Mission Assurance Requirements Tree: <http://www.hq.nasa.gov/office/codeq/doctree/doctree.htm> (Requirement). See Appendix C for a list of documents that are included in QAARs.

2.4.2 The NSC conducts QAARs to observe and support program and project SMA audits and assessments of prime contractors and suppliers at their sites, as specified in their contracts. When possible these are coordinated with the Center, program, or

project internal audit and assessment schedule.

2.4.3 The NSC shall conduct QAARs on a three-year basis at all NASA Centers (Requirement).

2.5 REDAA

2.5.1 The NSC shall conduct REDAA to verify the flow down of all NASA SMA requirements (Requirement).

2.5.1.1 For NASA Centers, the NSC shall conduct REDAA to review the flow down of all NASA SMA requirements into NASA Centers' documentation (Requirement). The NASA SMA requirements are contained in, but not limited to, the SMA requirements documents (NPDs, NPRs, and NASA standards) posted on the Safety and Mission Assurance Requirements Tree: <http://www.hq.nasa.gov/office/codeq/doctree/doctree.htm>. See Appendix C for a list of documents that are included in REDAA Center requirements flow down reviews.

2.5.1.2 For NASA Centers, the NSC shall conduct REDAA to review and verify proper implementation of the designated Center procurement process to assure proper flow down of all NASA SMA requirements into NASA contracts (as defined in paragraph 2.5.1.1) (Requirement).

2.5.1.3 For NASA designated programs and projects, and as NSC funding permits, the NSC shall conduct REDAA to review flow down of all NASA SMA requirements into NASA program and project documentation (as defined in paragraph 2.5.1.1) (Requirement).

2.5.1.4 The NSC shall baseline the REDAA flow down for all current SMA requirements and then update the baseline as SMA requirements documents are revised (Requirement).

2.5.2 The NSC shall conduct REDAA design engineering reviews to evaluate implementation of NASA SMA requirements contained in, but not limited to, the NASA SMA requirements documents (NPDs, NPRs, and NASA standards) posted on the Safety and Mission Assurance Requirements Tree:

<http://www.hq.nasa.gov/office/codeq/doctree/doctree.htm>. See Appendix C for a list of documents that are included in REDAA Design Engineering Reviews.

2.5.3 The NSC shall conduct REDAA design engineering reviews at designated key milestone reviews (e.g. Preliminary Design Review and Critical Design Review) of select programs and projects (Requirement).

| [TOC](#) | [Preface](#) | [Chapter1](#) | [Chapter2](#) | [Chapter3](#) | [AppendixA](#) |
[AppendixB](#) | [AppendixC](#) | [ALL](#) |

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